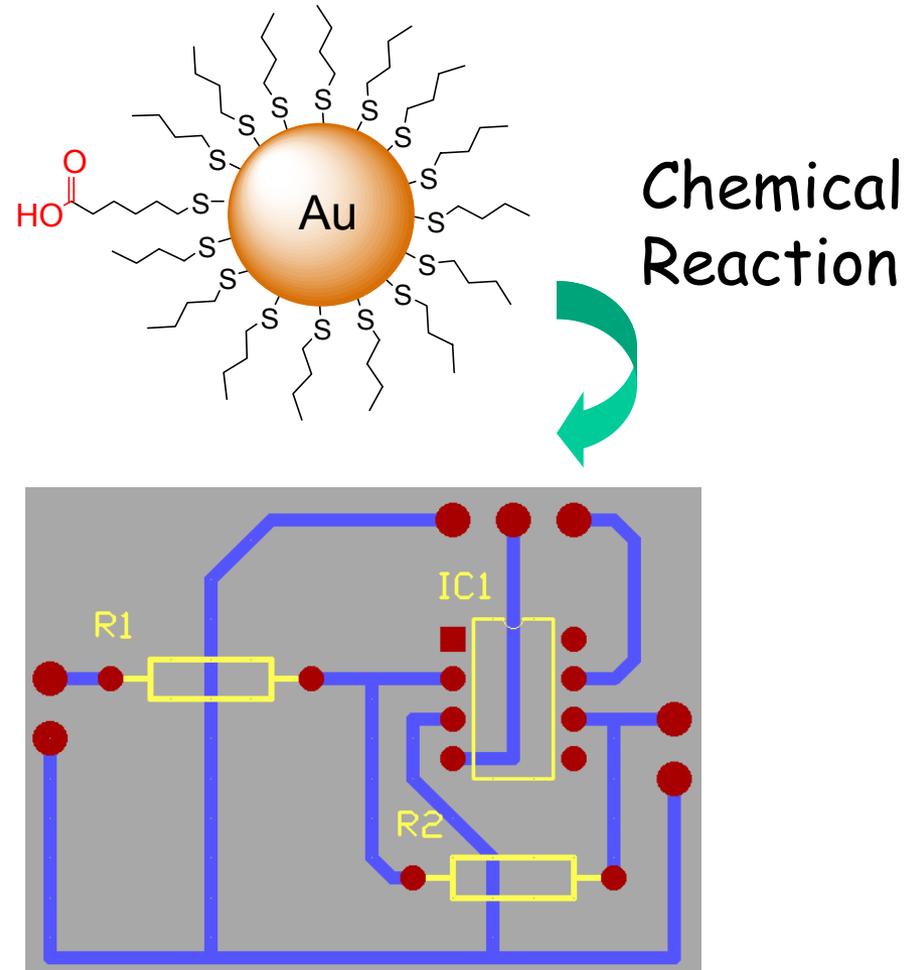


CAREER: Gold Nanoparticles with Single Surface Functional Groups: Synthesis and Study

PI: Qun Huo, North Dakota State University, DMR-0239424

Nanoparticles are important starting materials for nanotechnology development. Our research is aimed at the synthesis of gold nanoparticles with single surface functional groups. Such nanoparticles can be used as single electron transistors for future quantum computer applications. The success of this project will lead to the development of a novel technique to make, or more precisely, to “synthesize” quantum computers through abundant chemical reactions.



Gold nanoparticles may replace the current semiconductor transistors for future computer development

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Education:

1. Dr. Huo introduced a new chemistry course entitled “Topics in Supramolecular Chemistry” to graduate students. Supramolecular chemistry is a new chemical research tool used in non-traditional material development and holds an invaluable importance in nanomaterial research
2. Two graduate students, James G. Worden and Andrew W. Shaffer are working on this project. Andy is planning to defend his master degree thesis next summer and start his medical school afterwards. Jim is looking forward to defending his Ph.D. thesis one year from now and find a job in nanotechnology industry after his graduation
3. Two graduate students, Jim and Rajesh participated and presented in the Gordon Research Conference held in New Hampshire this summer, had a chance to meet a lots of friends and colleagues, and learned most advanced research in nanotechnology field.

Outreach: Students including James Worden, Andrew Shaffer, Duhua Wang, and Rajeshi Puthenkovilakom presented at the annual industry advisory board meeting at the North Dakota State University. Board members including scientists from GE, Dow-Corning, DuPont, Air Product, etc., listened to the presentations, and offered valuable suggestions to our graduate program.



Graduate student Jim enjoys a break time with Dr. Vincent Cresipi at the Gordon Research Conference